

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Revisions to Rules Authorizing the Operation)	
of Low Power Auxiliary Stations in the 698-)	
806 MHz Band)	WT Docket No. 08-166
)	
Public Interest Spectrum Coalition, Petition for)	
Rulemaking Regarding Low Power Auxiliary)	
Stations, Including Wireless Microphones, and)	
the Digital Television Transition)	WT Docket No. 08-167

REPLY COMMENTS OF AUDIO-TECHNICA U.S., INC.

Audio-Technica U.S., Inc. (“A-T”) submits these reply comments in response to the Commission’s *Notice of Proposed Rulemaking and Order*, released on August 21, 2008, in the above-captioned proceeding.¹ In the *NPRM*, the Commission has proposed, *inter alia*, to amend its rules to prohibit operation of low power auxiliary stations within the 700 MHz Band (698-806 MHz) after the end of the transition to digital television (“DTV”) on February 17, 2009; prohibit the manufacture, import, sale, offer for sale, or shipment of devices that operate as low power auxiliary stations in the 700 MHz Band; and modify existing authorizations to operate low power auxiliary stations in spectrum that includes the 700 MHz Band so as not to permit such operations in the 700 MHz Band after February 17, 2009. The Commission has also sought comment on issues raised by the Public Interest Spectrum Coalition (“PISC”) in its informal

¹ *In the Matter of Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band; Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition*, WT Docket Nos. 08-166, 08-167, Notice of Proposed Rulemaking and Order, FCC 08-188 (rel. August 21, 2008) (“*NPRM/Order*”).

complaint and petition for rulemaking (“PISC Petition” or “Petition”). The PISC Petition accuses certain manufacturers² of wireless microphones authorized for use under Part 74, Subpart H of having violated the Commission’s rules by: marketing and selling equipment limited by Commission rule to certain classes of users to the general public; marketing and selling equipment for purposes that violates the Commission’s rules; and deceiving the public as to the requirement for a Commission license and the limitations imposed by the Commission on the use of the devices.

Initially, A-T wishes to direct its reply to certain matters raised in the comments of the Society of Broadcast Engineers (“SBE”) submitted in this proceeding. In those comments, SBE expresses concern that the exclusion of Low Power Auxiliary Stations (“LPAS”) from the 700 MHz Band, as proposed in the *NPRM/Order*, will leave Broadcast Auxiliary Service (“BAS”) licensees with insufficient spectrum available to conduct their operations in an interference free, reliable manner. SBE requests the Commission to: 1) provide replacement spectrum to compensate BAS licensees for the loss of the spectrum represented by television channels 52-69; 2) limit use of such spectrum to licensed BAS stations; 3) reject PISC’s proposal to establish a General Wireless Microphone Service (“GWMS”) by rule to encompass existing unlicensed wireless microphone users; and 4) prohibit white spaces unlicensed devices (“UDs”) and unlicensed wireless microphone users from operating on unused spectrum in the television band.

A-T fully supports SBE’s request for that replacement spectrum be made available to BAS licensees to compensate for the loss of the 700 MHz Band if possible. BAS services are

² A-T is **not** one of the manufacturers named in the PISC Petition.

essential to media operations such as television broadcasting, movie production and the like. In comments submitted in the FCC's ongoing White Spaces proceeding, and repeated in its initial comments in this proceeding, A-T has asked the Commission to set aside at least some minimum amount of spectrum for wireless microphone use in each television market free from the possibility of potential interference from UD's at such time as the Commission allows for such devices to operate in the television white spaces. A-T disagrees however with SBE's claim that UD's and unlicensed wireless microphones represent the same threat to BAS operations.

As indicated in its comments of several parties (including A-T), and as acknowledged in PISC's own petition, one of the reasons that unlicensed wireless microphone use in the BAS spectrum has increased enormously over the years is because these unlicensed systems have been able to operate without causing harmful interference to licensed BAS systems. While paragraph 9 of SBE's comments suggests that wireless microphones operating at power levels of 100-250 mW have field strengths far too high to operate as unlicensed Part 15 devices, SBE ignores the fact that although the Commission's rules allow wireless microphones used for BAS operations to operate at power levels of up to 250 mW, in very few cases do they actually operate at such levels. Due to the limitations of current battery technology, wireless microphone products are more typically designed and certified to operate at power levels below 50 mW, a fraction of FCC authorized levels. And it is precisely because wireless microphones operate at such reduced power levels that A-T has asked the Commission to reduce the authorized power levels of any portable unlicensed devices that it may allow to operate in the TV White Spaces from the 4W levels currently under consideration by the Commission in the White Spaces proceeding.

Similarly, SBE's claim in paragraph 10 of its comments that there exists sufficient spectrum at 902-928 MHz and 2.4 GHz for unlicensed wireless microphones to be used by unlicensed non-technical persons, is simply not true. Those two frequency bands support a host of unlicensed operations ranging from cordless phones and children's toys to microwave ovens. If it were possible for wireless microphones to operate in those bands without interference, the significant growth of unlicensed wireless microphones in other bands would not have occurred. SBE attempts to stake out some sort of ownership position with respect to television spectrum that its clients have never paid for and have been allowed to use without payment as a public trust. Its gratuitous offer to assist the Commission in tracking down unlicensed wireless microphone users aside, SBE presents no helpful suggestions for increasing spectrum efficiency and resolving the issues confronting the Commission in this and in its White Spaces proceeding.

A-T also wished to address certain issues raised in the comments filed by the White Spaces Coalition ("Coalition"). Not surprisingly, the Coalition supports PISC's untenable claims that wireless microphone manufacturers are responsible for unlicensed microphone use on the television bands and supports PISC's unprecedented call to impose on such manufacturers the costs of relocating wireless microphone users out of the 700 MHz Band. These arguments have been adequately addressed in A-T's comments, and A-T's responses thereto will not be repeated here. However, it is worthy to note that the Coalition is less than enthusiastic when it comes to PISC's proposal to deal with the reality of unlicensed microphone use through the creation of a GWMS that would be authorized by rule to operate in the television bands. And here the Coalition shows its true colors.

Although it purports to advance the lofty goals of spectrum efficiency by supporting unlicensed use of fallow and underused broadcast spectrum in the television white spaces, the Coalition apparently desires to limit unlicensed users of this spectrum to its own membership and the unlicensed uses of this spectrum only to those services provided by its members. Thus, the Coalition opposes the creation of a GWMS as proposed by PISC and opposes any unlicensed wireless microphone use on television channels 21-51. While the Coalition grudgingly concedes that licensed BAS users would continue to operate and receive interference protection in this band from UD's, and even proposes to ever so slightly expand eligibility under Part 74 to include the largest houses of worship and performing arts venues of 500 seats or more, it is apparently unwilling to share the white spaces with smaller churches, stages and other socially desirable applications of wireless technology demanded by consumers that it deems frivolous (or, in its own words, "squandered"). It seems that the Coalition would replace a command and control system of spectrum allocation administered by the Commission with a command and control system of spectrum allocation administered by and serving the Coalition and its members.

A-T has never opposed allowing the television white spaces to be used by the Coalition or its members. A-T has only asked that the Commission proceed cautiously and carefully based on empirical field testing to ensure that spectrum sensing technologies are sufficiently reliable to allow Coalition members to avoid interference with wireless microphone users before they are allowed to operate in the television white spaces on an unlicensed basis. A-T's extensive experience as an industry leader in the field of electro-acoustic design and manufacturing gives it a unique perspective in what is essentially a dispute between the interests of groups such as the

Coalition who desire to use the television white spaces on an unlicensed basis, and groups such as the SBE that believe the television bands belong exclusively to the television industry and should not be shared. A-T also believes that if the Commission opens up the TV White Spaces for unlicensed use, this should include all unlicensed uses, including unlicensed wireless microphones, that can coexist with licensed operations and not just those unlicensed uses that reflect the interests of the Coalition and its members. If the spectrum is to be unlicensed, there should be no eligibility requirements. A-T supports PISC's call for creation of a GWMS that would reflect the realities of the marketplace, the growing reliance on wireless communications and services fostered by forward looking FCC policies and the fact that, as a result of those policies, wireless microphones have become deeply embedded into the fabric of our culture.

The Coalition's claim that there is other spectrum available for wireless microphones is unavailing for the same reasons given in response to SBE's similar arguments. The Part 15 frequencies are overcrowded with a variety of products that are simply not compatible with wireless microphones and the Part 90 travelling frequencies do not contain sufficient spectrum to accommodate the demand for wireless microphones even though licensing eligibility criteria that exists under Part 90 is probably broad enough to cover most wireless microphone use. If either or both of these bands were sufficient to accommodate the demand for wireless microphones, unlicensed wireless microphone use would not be an issue in this proceeding. Likewise, the Coalition's suggestion that ultra wide band (UWB) technology represents a solution for wireless microphone users is somewhat of an overstatement. A-T is the industry leader in the development of UWB wireless microphone technology and its SpectraPulse® UWB wireless

microphone system recently won the Technical Excellence & Creativity (TEC) Award for outstanding technical achievement in the category of Wireless Technology at the 24th Annual TEC Awards in San Francisco held on October 3, 2008. A-T's UWB microphones were also used during the third Presidential Debate between Sen. Barrack Obama and Sen. John McCain hosted by Hofstra University on October 15, 2008 and carried live by multiple national networks. While A-T would be the first to agree that this technology holds great promise and potential, the cost of this equipment is such that it presently cannot be considered a realistic option for the typical wireless microphone user and probably will not be for at least the next several years.³

The FCC is faced with the need to balance the public's demand for wireless microphones and its own desire to make spectrum available for new innovative services of the type proposed by Coalition members. At the same time, it is imperative that the interests of BAS licensees are protected. These are decisions for the present. As A-T has indicated in its comments, years of experience has demonstrated that unlicensed wireless microphones can coexist with licensed BAS services without causing harmful interference. Likewise, UD's can be allowed to operate in the white spaces without causing interference to BAS licensees once UD advocates, such as the Coalition, are able to demonstrate that spectrum sensing technology, coupled with beaconing and database solutions, have developed to the point where UDs can reliably detect and avoid causing interference to existing and future authorized operations.

³ In this regard, A-T wishes to point out that wireless microphone manufacturers are always working to develop new spectrum efficient products and are part of the solution, not part of the problem. PISC's proposal to impose relocation costs on small companies such as A-T would undoubtedly have adverse economic consequences that would impair their ability to develop new innovative products such as the UWB microphone.

The biggest interference problem between UD's and unlicensed wireless microphones stems from the Commission's current proposal to allow portable UD's to operate at power levels of up to 4W. Portable devices are nomadic and as such cannot be coordinated and planned for ahead of time in setting up a wireless system for an event. Additionally, the disparity in power levels (UD's at 4 Watts versus 30-50 mW for a typical wireless microphone) increases the likelihood the portable UD's will cause harmful interference to wireless microphones operating in proximity. For this reason, A-T has advocated in its comments that the Commission should reduce authorized power levels for portable UD's and carefully define the operating parameters.

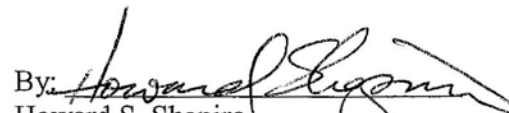
Other approaches have also been suggested that might allow portable UD's to operate at higher power levels without interfering with wireless microphones. A proposal advanced by Sennheiser Electronic Corporation ("Sennheiser") in this proceeding would allow portable UD's and microphones authorized as part of a new GWMS to operate in different portions of the television band with UD's operating on channels 38-51 and wireless microphones operating on channels 2-36 (subject to existing restrictions regarding certain channels used by public safety services in certain cities). A-T supports consideration of this approach by the Commission as an alternative way to fairly balance the interests of all interested parties.

Based on the foregoing, A-T respectfully requests that the Commission provide for an orderly and cost effective transition of LPAS out of the 700 MHz Band by imposing the same DTV transition schedule that it adopts for LPTV and TV translator stations; adopt PISC's suggestion to create a GMWS and set aside adequate spectrum this purpose; and reject PISC's ill-conceived attempt to saddle wireless microphone manufacturers with any relocation costs attributable to the Commission's reclamation of the 700 MHz Band.

Respectfully submitted,

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